

AVIATION

The Oldest American Aeronautical Magazine

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Action picture of two Huff Daland Dusters in operation at Lima, Peru

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AVIATION

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News Editor

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Art Editor

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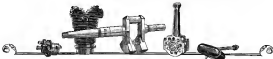
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Foreign Advertising

ACCORDING to statistics made available by the Aeronautics and Communications Section, Transportation Division, Bureau of Foreign and Domestic Commerce, a total of 87 airplanes were exported during the first six months of this year, as against 61 airplanes exported during the whole of 1927. A comparison of the figures gives one a fair idea of the rapid progress that is being made in the export side of the industry. To measure, and what is more, to increase, that foreign sales level is the dream of every one concerned.

The number of sales made thus far have been attributed to the recent splendid performance of American-made planes in transoceanic and transcontinental flights, and the various sailing missions that have been dependent to foreign countries by American manufacturers. However, it stands to reason that future flights will not make the lasting impression that were made by Lindbergh, Chamberlain, Gorbil, Brock and Schick and a host of others. And it also stands to reason that it would be far too expensive for American aircraft manufacturers to maintain entire selling missions to all of the foreign countries.

That being the case it would seem as though the American manufacturer would do best to secure sales in the foreign market similar to one way he secures sales in the domestic market... by advertising. Whether the purchase of space in foreign aeronautical publications is worth the expense remains to be seen. However, the placing of descriptive booklets and folders in shops or near hangars, such as English, French, Spanish and Chinese, would incur very little expense and should prove more valuable if properly displayed.

The distribution of the booklets and folders could be handled in various ways. If per chance the manufacturer establishes an agency or appoints a representative in each of the foreign markets then the advertising literature could be effectively distributed by either of those two parties. Another way is to obtain a foreign prospect mailing list and distribute the advertising material direct to the prospects. A third way and one which should be most effective, would be to utilize the assistance of the United States Bureau of Foreign and Domestic Commerce in supplying, as trade commissions with the booklets and folders to prospective customers. The Bureau has been of invaluable assistance in the past, and judicious arrangements might be made for the making of this additional assistance.

In the event that the manufacturers did not care to advance individually they might obtain good results by co-operative advertising. The aeronautics manufacturers' section of the Associated Chamber of Commerce could prepare a booklet describing all of their products. Of some sort of arrangement might be made by the exhibitors participating in an aircraft show to pay for the printing of a booklet giving descriptions and prices of the products displayed. The Aeronautics Chamber did this very thing in connection with the affair at Bolling Field in 1927, and according to reports it was well received by foreign markets.

Shipping Plants

AT the present stage of the development of the aeronautical industry the geographical location of the manufacturer would seem to play a prominent part in the matter of exporting equipment. The manufacturer who is located in the central part of the country is bound to pack his equipment at the factory and then ship it overland by rail to the point of embarkation where it is transferred to the steamer. On the other hand, the manufacturer who is situated at a seaport has but one pack his equipment and send it by truck straight to the steamship pier, and the actual cost of transporting that equipment from the factory to the steamer assumes a proportionately less than the cost in the usual manner when it is located inland.

In the matter of exporting automobiles the automobile manufacturers have established shipping plants at the various seaports. To these plants are sent the parts of the car, direct from the factory for assembly and packing for shipment overseas, so far packing and shipment completely knocked down. C. K. D.

Although the amount of exporting being done at present by the aeronautics industry does not warrant the expense of establishing assembly and packing establishments at seaports, it would not be amiss for the aircraft manufacturer to give this matter serious consideration as a means of preparing for the time when foreign sales will become an important factor in his business. The transporting of aircraft by rail is a gamble in itself due to the size of the product. An assembled automobile, ready to run, is more or less portable and relatively easy to crate and ship, whereas it is an impossibility to ship by rail a completely assembled airplane. Therefore the matter of shipping a plane completely assembled is one of the questions.

It has been stated that due to the great size of a vessel placed in proportion to its weight, it has been found a most expensive proposition to transport airplanes by rail. For this reason most manufacturers have been seeking domestic deliveries by the air route. In other words the plane was flown to the customer. As many cases the customer has taken delivery of his plane at the factory and flown it away himself. Whether rail freight in the near future will be reduced to a point where they compare with the cost of delivery by air is left to be highly improbable.

Consequently, if delivery to the domestic customer by the air route is the cheapest, then it would seem that he be made to pay the cost of shipping his plane abroad, and be located inland, to fly their planes to the point of embarkation. These they can be loaded down and packed properly for the ocean trip. In this way the factory is saved the task of packing and, incidentally, the plane arrives a really good lot and better it reaches the customer. There is no reason why several manufacturing companies could not enter the same packing establishment, and thus permit each to obtain the benefits of shipping which might not be profitable for him to attempt alone.

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The Advantages of Selling the Foreign Markets

By HON. WILLIAM F. MACCRACKEN, JR.
Assistant Secretary of Commerce for Aeronautics

MUCH has been written about the value of international long distance flights by our airlines in promoting goodwill and foreign trade in general, but little attention has been given by our aircraft manufacturers even to the effect of their flights upon their export markets. Recently tangible results have appeared in the form of foreign orders. A Latin American country raised the money by popular subscription to purchase three cabin airplanes of the type down there as a pioneering goodwill flight. Prior to that time European planes were in favor in that country.

There are other instances. A middle west factory, bidder of the monoplane which flew from Detroit to Tokyo, sold a plane in Europe shortly after that wonderful flight. China has also become a customer, a shipment from California being now on its way. An American organization which has carried an cotton darning fly airplane in Peru for several years has already been responsible for the sale of six aircraft for use on a newly established airline. In another South American country, a prominent service firm has two American biplanes on visits to its constituency.

Although the major part of South America has not been visited by our commercial aircraft there are indications that substantial business will soon be forthcoming. Much of this interest has been awakened by the manufacturers, and it will now require efforts are taken to stimulate it. The aeronautics industry has a tremendous obligation to fulfill if the flights of our airlines are to be made more advantageous undertakings. It should

space given over to gasoline tanks. These planes which were of the single engine type were made available to the shippers at prices not greatly in excess of \$15,000. And they were probably sold at a profit to the shippers. The airplanes placed used were of a type now operating on some of our air transport routes selling around \$40,000 to \$50,000. Figures are not available as to the prices of the foreign planes which have actually made such wonderful records. It is known, however, that with the exception of the type but excellent "Yorba" and "Aviation" planes from England to Australia and South Africa, they could not be duplicated for less than twice as much as our aircraft would cost. This fact, which I cite out



Man Wm. F. MacCracken, Jr.

to depreciate the performance of foreign aviators and planes, is increasing from the standpoint of foreign sales. Even with high labor costs, we have learned to produce economically in this country so there are no subsidies for our factories to rely upon, and few of them have reached anything like quantity production as it is known in other countries.

If history repeats itself and the aircraft industry continues as it has started in producing efficiently and economically we should have a similar status to that of the automobile industry in respect to the proportion of American aircraft to foreign in use outside of the United States. Of course, there are factors which militate against us in certain countries such as our inability to sell where aircraft industries are subsidized by Governments for military reasons. The entry of our quality aircraft at a low first cost and subsequent economy of operation will be a benefit to the consumer as it is to the producer; if this does not follow the producer does not long occupy a place in the domestic or foreign market.

The aeronautics industry is gradually becoming aware of the advantages which may be derived from lessening

with foreign countries, but there is still much to be desired. The industry realizes, perhaps, that the prestige attained by having a product made in Wichita is efficacious as in Alaska will result favorably upon the sale of that product at home. But few in the industry give credence to the export consideration. Why is an export market so severely desirable? This question is aptly answered by Dr. John Kline, director of the Bureau of Foreign and Domestic Commerce of the Department of Commerce,



A shipyard of Half Dated Cruisers leaving the factory at Monroe, La., for Cebu, Peru.

which separation is charged with developing foreign trade for American producers.

"An export trade in aeronautics products will reduce and stabilize the production of these products with consequent savings in cost to the users and increased earnings for the makers. Market diversification through foreign sales stabilizes demand which in most lines of trade is subject to seasonal fluctuations.

"Among the most successful American industries are those which have a good proportion of their business with foreign countries. For example, the ten to fifteen per cent of automobile production which goes abroad may very profitably result in that margin of profitable stability in the industry which means low prices and that enables many of us to own an automobile who could not otherwise. Concurrently, automobiles could not be marketed in certain countries where it was for economies of production made possible by balanced demand resulting from wide-spread foreign business.

60 Per Cent Foreign Business

"One American industry might not now be in existence if it were not for the fact that fifty per cent of its production is exported. The foreign business amounting to sixty per cent enables the industry to sell the remainder of its production here which it could not sell here enough to sell because of the competition afforded by a different product having a similar use. By reversing this picture—which applies to the motor cycle industry—one can realize the advantages of an export trade to a specific industry. The manufacturer who makes 350 airplanes a year will sell only 30 overseas in the event of a 10 per cent against a domestic demand providing of course that he can duplicate that business the year following. If he deals intelligently and fairly with his foreign customers he should with little difficulty increase his foreign sales each year."

Airplane factories are springing up all over the country. Those that have been in business for several years are increasing their facilities. The Great Lakes airplane only 61 firms in producing 1,875 airplanes and 105 au-

planes and amphibians during 1937. How many of these 61 factories made more than ten aircraft during that year? It may be presumed safely that fifty per cent of this production was put out by ten firms. What of the 31 other producers, or of a similar number of new organizations entering the field this year? Will they be in business two years from now? If they are, what percentage of their products will be sold in the United States, and what percentage will be sold abroad? Few of either class have ever exported and the majority, apparently, do not even take the trouble to answer inquiries received from foreign countries. They are too busy with current domestic business or physically handicapped by the lack of agents, or equipment, to give proper attention to export trade. While in the meantime their competitors, both domestic and foreign, are explaining the causes for their inability to deliver or are submitting quotations and offering to make deliveries for export regardless of domestic demand.

An Advantage to the Operator

It seems to me that it will be of great advantage, not only to the manufacturer but to the operator both at home and abroad if the former approach his marketing arm outside the United States. The operator in this country will profit in that his costs will be less at lower cost, and if he engages in international operations, he will get better service abroad if the type of plane he uses is well known. In this connection, the better representation of our aircraft and air services, operators could probably be made available in the foreign operator using similar equipment.

With the need for air services to supplement the existing inadequate transportation facilities of many far-



Dr. C. M. Maynard, Capt. E. La Borda, Cuban Air Corps, and C. B. D. Collyer on the front of a Fairchild Universal airplane of the Cuban Naval Air Corps.

most countries, and for the augmentation of services to isolated sections, there seems to be an excellent opportunity for American aircraft manufacturers to export. The aircraft firm that can successfully selling foreign markets are few, and it is significant that those few are among the most progressive from the standpoint of manufacturing methods and management. The Department of Commerce, through its Bureau of Foreign and Domestic Commerce, stands ready to serve all the manufacturers who are desirous of expanding their markets beyond our national borders.



A special Wright "Whitcomb" powered Fokker used by the Tels Railroad Co. in Henderson. Note the third wheel in front.

be considered a duty on the part of the industry to follow up these flights with intelligent salesmanship.

It is of particular significance that the American aircraft which have been before the eyes of the world because of their remarkable international flights were without exception no more than stock models, with passenger

Government Assistance for Aeronautic Exporters

By LEIGHTON W. ROGERS

Chief, Aeronautics and Communications Section, United States Bureau of Foreign and Domestic Commerce

A YOUNG industry, such as the group of aeronautic firms that have been in existence only a few years is inevitably reluctant to take steps to promote its business through the medium of foreign sales. Export duties, special export credits, consular lists, documentation involved and the matter of collections are thought of as insurmountable barriers to export but the experienced. As a matter of fact, a transaction with a foreign customer need not be avoided and may be effected as expeditiously handled as one with a neighbor. Export duties, if any, are absorbed by the customer; credit is a problem for a customer guided by fair prices, and supervised by a competent engineer, consular formalities and documentation may be handled only within the supervision of by an agent at low cost, and the matter of payment or credit is out of receiving cash before shipment or granting credit after careful investigation and consultation with banks.

An American aircraft producer whose product has been granted an Approved Type Certificate and who wants to export need not worry about these so-called "hurdles" of exporting. If the local chamber of commerce is not in a position to answer his call for assistance, that organization can tell him where the nearest District Office of the U. S. Bureau of Foreign and Domestic Commerce is located. There he may find the advice as to the procedure necessary in order to place the desired group

or being carried out by other organizations. The unnecessary work of helping American industry in general to take as an international aspect has been partly completed and for America has recently received considerable assistance from the United States government in the form of the export of aircraft and the elimination of unnecessary and costly sales and commissions.



One of the four "Waco" powered Ford cabin monoplane to be used on the Montreal, Canada, to New York City and east passenger route, Canadian Colonial Airways.

The aeronautic industry however will need some assistance in establishing itself in the world market.

For this purpose a Foreign Aeronautics Section has been established in the Transportation Division of the Bureau headquarters at Washington, which section acts as the heart of the aircraft foreign trade promotional work of the Department of Commerce. Its functions in the same way that the Automobile Division does for the automotive industry, the Industrial Machinery Division for its group and in a way similar to the other fifteen commodity divisions which are studying foreign marketing conditions and through the foreign office seeking markets for their respective industries. The material which comes in from the fifty-five foreign offices of the Department of Commerce and the 500 consular offices of the Department of State, located where the Department of Commerce does not maintain branches, is directed and disseminated to the industry through its Consulate offices. Nothing is filed and forgotten which would be of value to the industry being kept advised of any foreign development of importance in possible interest. Another service, and an important one is that in connection with export duties for the sale of American aeronautic products which comes to the attention of foreign representatives of the Department of State and Commerce.

An example of how trade opportunities realized by these men ready to business for our factories occurred recently in a Latin American country. The United States Government representative asked to the effect that several commercial planes were to be purchased and that unless quotations and complete descriptions were

in his hands by a certain date, the business would very probably go to a foreign manufacturer.

Immediately upon receipt of the sale the Foreign Aeronautics Section went to all the manufacturers of the particular type of plane desired. The writer suggested that air mail be used to reach a certain number. After the receipt of this information from all the manufacturers interested in the business the Government representative sent a cable asking for a return cable giving an advisory opinion as to the best model of plane for which he had received quotations and other data. He returned that status on advisory opinion could be given there were no objections to the business for United States products. Of course no advisory opinion could not be given by the Department of Commerce. Instead a cable was dispatched to the effect that performance data, as reported to the Department by the manufacturers, was being sent. It was suggested that if a choice could not be made with these as a basis, price be the deciding factor. Evidently, this suggestion was acted upon as usually an American firm closed with the foreign customer. No charge was levied in order for such services rendered by the Department of Commerce.

(Then Mexico of Service)

This instance is cited as a practical example of how the Government can aid the exporter and do so impartially, involving equal assistance to firms both small and large. There are other means by which it can be of service. More possible trade opportunities than the one mentioned above is regularly through the mails and are disseminated to responsible American firms through the Consulate offices of the Bureau. A firm in Uruguay wants the agency for a low priced open cockpit plane; a manufacturer's representative wants to locate on a new business loan a similar type of plane in Johannesburg. These two opportunities are similar ones are open to any manufacturer whose capital is at least \$1 per unit. Approval and whose plane has an approved type certificate from the Aeronautics Branch.

The Aeronautics Branch by the way concerns very closely with the Section of the Bureau of Foreign and Domestic Commerce which has to do with the promotion of aeronautic sales in foreign countries. And naturally that is a continuous exchange of information between the two branches of the Department of Commerce. Since the Bureau offices in this country have been designated respectively as headquarters for the Branch's operations.

In regard to the technique of exporting it was mentioned before that questions as the subject are answered expeditiously by the Consulate offices. These offices are staffed by men who have had many years of experience in foreign trade either in private business or as Consulate



1 Krystof "Ponzo" (W.H. Wright) plane used on the Lima-Iquitos, Peru, line of the Peruvian Postal Air Service.

normal Attaches or Trade Commissioners of the Department of Commerce in foreign countries.

It is not the purpose of these men to act as export traders but merely to advise the manufacturer of the potential export as to the means approach to success and means i.e. where the latter may obtain the services of a reliable third party, where foreign contacts are located, where information may be obtained on foreign laws affecting for credit and where to obtain information which would enable the manufacturer to quote "C.I.F." as compliance with the terms of the potential customer where specifications for export items may be obtained. The study of these offices may be of national assistance in the interpretation of information obtained from outside sources.

Any questions relating to foreign trade law, whether or not they have not been answered or for other reasons are not to be answered immediately the Consulate office is in touch with the Aeronautics Section and the technical staff of the Bureau such as the Commercial Law Division, the Division of Foreign Tariffs, the Shipping and Railway Sections of the Transportation Division, and the Commercial Intelligence Division. The last mentioned has reports on approximately 750,000 foreign firms going down to as far as handled, how long (Continued on page 1032)



A line-up of Heli Helical Dusters at Lima, Peru, February, 1937. The man at the left of the three is H. R. Harris, in charge of operations.

of exporters, to which many members of the machinery, automobile, textile and chemical industries have belonged for more than a decade. The assistance given by these twenty-four offices, or the forty-eight cooperative offices located in chambers of commerce is not partial but apportioned and proper.

The primary function of this highly organized Bureau has been to point the way toward successful exporting and to do so without duplicating the work accomplished



An order of Consolidated NY-2 plants ready for shipment is Brazil, S. A.

Proper Packing Methods for Export

By THOMAS E. LYONS
Chief, Packing and Material Handling Section,
Transportation Division
Bureau of Foreign and Domestic Commerce

DURING the first five months of 1938 the United States exported aeronautical products valued at \$1,464,000. If these figures can be used as a criterion, the export figures for the first six months of 1938 will equal, and possibly exceed, the total sales for the year 1937, when the United States shipped abroad \$1,950,000 worth of aeronautical equipment, and which was a record year in this rapidly growing industry.

The rapid development of sales in aeronautical equipment in export markets and the possibilities of further extension has caused manufacturers to give serious consideration to the many difficulties which must be overcome in making prompt and satisfactory delivery when orders are received.

The recent performance of American planes in national and transoceanic flights have drawn the attention of foreign buyers to the efficiency of design and construction of American airplanes, and inquiries from potential buyers and agents are coming to the United States as a result of these flights. The problem of delivery of planes abroad, however, is entirely different from that of delivery within the United States.

Naturally, the foreign buyer is interested in the "C.I.F." price he must pay for his flying equipment. Therefore, in quoting prices American manufacturers should take advantage of every opportunity available to reduce handling and transportation charges. While efficient packing is an essential requirement, any unnecessary packing material or dimensions serving to increase transportation or



Showing the method of encasing a "Humb" in the flooring of a shipping case. (Curtiss photo.)

handling charges adds but that reach to the ultimate cost of the plane to the foreign buyer.

As the present stage of development of aviation it is difficult for American manufacturers of aeronautical equipment to adopt standard production methods tending to reduce unit costs as employed in other industries. It is, however, possible for American manufacturers of such equipment to adopt efficient distribution methods. One

important factor in distribution costs which can be controlled by the shipper is that of packing. Experienced shippers have long since learned that efficient packing can be accomplished in many cases at a cost lower than inefficient packing, and, to illustrate designing of shipping containers and careful

study of the construction of the container, of set-up equipment, shipments can be made at less cost and with greater security than improperly packed merchandise. Of the many diversified commodities which enter into our export trade none presents a more difficult packing problem than airplanes. Due to their unusual size and the necessity for adequate protection, experienced exporters have given considerable attention to the packing and shipping of aircraft.

As ocean freight rates for commodities of this nature are usually based on cubic measurement, it is essential that cases of aeronautical material be designed to occupy the least possible space. Some manufacturers are constructing their machines intended for export with a view of permitting them to be easily dismantled into compact shipping units and at the same time requiring a minimum of effort and skill for reassembling when the machines are to be set up abroad.

During the late war a large manufacturer and exporter of airplanes and flying boats encountered severe popular and financial problems in making export shipments. One of the principal problems was resulting against the packing of large and comparatively light cases in the process of meeting and exporting. Realizing this condition must be overcome if planes were to be handled safely, the engineering staff of this company engaged in a series of studies and experiments, leading to the solving of the serious problem of storing and supporting these long and light cases against buckling.

After many experimental shipments, this manufac-



Thomas E. Lyons



Two planes being moved by truck to assembly ports for export. Note the unusual length of point box on front truck, accommodating a trailer. (Curtiss photo.)

turer states that with the efficient methods of packing and handling developed in a result of many tests, shipments have been made to many parts of the world with no reports of damage to planes while in transit. In preparing export shipments this manufacturer employs the following method:

The machine is first dismantled into three separate units, fuselage, wings and elevators, and propellers.

The landing wheels are removed and securely fastened to the flooring of the case, one beneath the engine and the other under the cockpit of the fuselage, and are bound by steel wrapping of 3/4 in. width. The sides of the landing gear are cradled to bed of case by two 3 in. x 6 in. maple blocks, resting on ends at each spindle. These blocks are held in an upright position by diagonal bracing 4 x 4 in. which are reinforced by eight inch lag screws, both in the floor blocking and in the uprights. To prevent squaring a one half inch rod is run through the entire length of the sides and bolted to the maple blocks. A steel inch square diagonal brace is placed at each end of the rod to give additional rigidity. The propeller is bolted to the flooring of the box by a single bolt running through the hub. The flooring of the case is constructed of double one half inch spruce, between which waterproof paper is placed, and one wall at which is straight and the other laid at 45 deg. angles. The flooring is installed on three 2 x 4's beveled at the ends and forming a skirt. Stringers of 2 x 4 in. pine are run the full length of sides and ends and are set in from the edges to permit sides and ends to be raised and loaded securely into place. Saw-tooth screws below placed two inches apart are employed to secure sides and end walls to stringers.

Tail Anchored in Spruce Piece

The tail of the plane is anchored to a piece of 2 x 8 in. spruce, running the entire width of the case and which is in turn bolted through the bottom of case and into slots with two one half inch bolts at each end. The heads of the bolts are countersunk in the slat members to permit easy removal of the case. A built up block of 2 x 8 x 10 in. lumber, on which rubber discs have been placed, serves to support bottom of tail and distribute shock on this part of landing. A 2 x 10 in. iron plate is strapped to the 2 x 8 in. spruce with a one half inch rod which firmly anchors tail of plane to floor. The sides, ends and top are built of same material, double thickness, and the top has 2 x 4 in. stringers, fitted over edges to permit raising and the use of screw bolts. The floor of the case is constructed of two-ply one half inch spruce, both on a skid of four 2 x 4's running entire length of case and beveled at ends. The unusual length of this case—32 ft.—requires interior stiffening,

which is accomplished by running 2 x 4 in. diagonal bracing every four feet from each side of case at both top and bottom. The panels and all surfaces are separated from one another by ten cross pieces at various intervals within the case. These cross pieces also serve to stiffen the side walls and are covered with waterproof felt to prevent chafing. One-half inch double thickness spruce, shipped and running at 45 deg. angles, with waterproof kraft paper between the laps, is used entirely in the construction of the case. Six-penny enamel-coated nails are used for securing the side walls, while ten-penny nails are employed for the bracing. 3 x 6 in. supports are run the entire length at top and bottom of side walls and six inch lag screws are spaced every two feet looking the side walls to the 2 x 4 in. pine framework which has been placed on the inner sides of the top and bottom of the case. To provide additional rigidity six diagonals of 1 x 4 in. material are placed on each side. The ends have four 1 x 4 in. slats with diagonals running both ways. The diagonals are of the same thickness of material as the slats. The case is ventilated at the lower corner with



Point box with top ready to go in place. Note outside diagonals and inner bracing to prevent buckling. (Curtiss photo.)

a two inch hole over which were nothing has been placed to prevent rodents from entering.

The case, considering the porting, handling track and heavy doors is built on a solid base, four 2 x 4 in. members running entire length of case and braced at ends. The box is of double-wall construction, one of which is composed of shipped spruce, one half inch thick, between which waterproof kraft paper is placed. The handling track is raised off wheels and blocked with 2 x 4 in. spruce, bolted into position and held by two cross

(Continued on page 1076)

Airlines Outside of the United States

By BROWER V. YORK

Aeronautics and Communication Section, Transportation Division, Bureau of Foreign and Domestic Commerce

A N extraordinary advance of air transportation over other means of carriage is its speed. This is hardly worth while between two cities half an hour apart, and well served by surface transportation facilities, but its value increases progressively as the distance increases. That is why the more important air services in Europe are over two or more countries, and the principal new services abroad are between countries and continents.

The principal transportation and communication services outside these in the United States are largely international in character. Since progress is measured by the development of means of air services for transportation and communication, it is of the greatest importance to the whole world that air transportation has made its maximum contribution. It has more than doubled the speed by which we may travel or send our correspondence and goods. The greatest quarter century period of transportation development started with the flight at Kitty Hawk.

Regular air services have been developed almost entirely since the Great War, and they are maintained now over nearly 45,000 mi. of routes. About half of these are international lines, and 15,000 mi. are internal routes in the United States. Germany has some 20,000 mi. of in-

ternal savings of passengers and goods between the principal cities in Germany, over the Australian lines, the "Scandinavian" lines in Scandinavia, and the "Sakura" lines in the Belgian Congo (but the leading lines of air traffic in Europe, outside of the United States, are between London and Paris, London, Rotterdam, Amsterdam, Brussels, Copenhagen, and Malmo, Stockholm and Berlin, Berlin and Moscow, Paris, Prague, Warsaw, Vienna, Budapest, Belgrade, Sofia, Bucharest and Constantinople, Harbin, Peking and Yokohama, Barcelona, Madrid and London, Paris and Cuzco, Lima and Lima and Lima and Lima).



Brower V. York

An important company in the transportation world is the Royal Air Navigation Co. of the Hague. It was formed in 1919 by business leaders and bankers, and has maintained services between the Netherlands and neighboring countries since 1920. In 1927 the company's planes flew 817,000 mi. over the routes between Amsterdam and Rotterdam, and London, Bern, Paris, Basel, Amsterdam, Brussels, Harbin, Copenhagen and Malmo. They carried 12,516 passengers, 443 tons of goods and 38 tons of mail. The little of this movement was between the two Netherlands airports, 40 mi. apart. This international air passenger traffic was double that of 1925, the air mail (internally) was equal to that carried by the company in the preceding seven years, the air parcel mail was three times as great as in 1925, and the increase in goods traffic was 150 tons. Cut flowers (weighing 65 tons), wearing apparel, and other valuable goods were important in the company's traffic. Their solicitors report constantly increasing income in building it up. The carrying capacity of the planes in 1926 amounted to 800 tons and 45 per cent of it was used. Forty-six per cent of the 1,000 tons capacity was taken in 1927.

The company reported for 1927, that its traffic

amounted to 1,272,000 non-shipment, and that the operating cost amounted to the equivalent of about 47 cents per ton km. These figures are highly favorable compared with 100,000 tons km at \$1.50 in 1922, and even 882,000 tons kilometers at 50 cents in 1920. The company, engaged almost entirely in international air transportation work, and probably the least dependent upon a subsidy of all European air service companies, expects to increase its efficiency to a point where operating profits will result by 1934. A seven year subsidy arrangement was made with the government in 1922 on the basis of progress up to that time, and by which the subsidy is reduced each year, and will end in 1934.

A subsidiary company has been formed for services in the Netherlands East Indies. These are expected to be in operation in 1929. Several experimental flights, on which mail is being carried, are being made by the company between Amsterdam and the East Indies. A regular service over that distance will be available before many months pass.

Freight has an operating company which maintains services between the capital, Stockholm and Stockholm, and between Stockholm and Tallinn, Estonia. The flights are over water and are popular. The Swedish Air Transportation Company cooperates between Stockholm and Helsingfors. It operates between Malmo, Copenhagen, Hamburg and Amsterdam, and its planes carried 13,000 passengers between these cities under five flags in 1927. The Swedish Flying Association is experimenting as a service to London on which night flying is done. The Danish Air Service Company has only one report on some territory, but it maintains its place in the international companies.

Great Britain, another maritime country, boasts the Imperial Airways Ltd., which has highly organized services between seven countries. Only three of its 15 stations are in the British Isles, its planes flew 269,000 mi. on European routes, and carried 19,000 passengers and 600 tons of goods over them in 1927. They made 43 per cent of the flights and carried 57 per cent of the 29,000 passengers who flew across the Channel. Creditable progress is being made by the company in its Cuxa in England and Bala service and an extension to Karachi, India, is planned for next April. Inter-continental service are in the making. The two large airports being in England are destined to play between England and India and Africa.

Austria has a small area but she has an air transportation company. It is necessary here again to operate in connection with foreign companies and agree to conditions. Switzerland is served by British, French, German, and Italian companies.

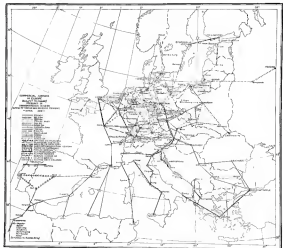
(Continued on page 1042)



Leaving a Keystone "Proctor" (AP Photo) and other planes for service on the Lima to Lima, Peru, service.

terminal lines, and Australia over 1,500 mi. of such services. Services under the British, French, Netherlands, Danish, Swedish, Finnish, Czechoslovak, Swiss and American flags are almost all over international routes.

Outside the United States, the air traffic is heavier on international than on local routes. Of course there is in-



Our Aircraft in Foreign Operation

By FOWLER W. BARKER

Armament and Communications Section,
Bureau of Foreign and Domestic Commerce

THE efficiency and stamina of United States airplanes have recently been demonstrated by their operation in foreign countries. It is not surprising that the standard Army plane capable of doing an outside loop should make a favorable impression in South America. It was somewhat of a surprise, however, to learn that the same type of plane flew without a stop from Asunción, Paraguay, to Rio de Janeiro, Brazil.

This flight was made by Lt. James Doolittle in a single-seater Curtiss "Hawk," who did not receive his destination upon taking off from Asunción. Upon arriving at Rio de Janeiro 7 hr. 30 min. later, after having flown approximately 930 mi. it was difficult to convince the spectators that the flight had been made in that time and from that point. Lieutenant Doolittle, who is thought to be the first pilot to execute an outside loop has been on leave from the Army Air Corps and has demonstrated two Curtiss models before the heads of the air services in Peru, Chile, Uruguay, Argentina and Brazil. The Curtiss Company has sold planes and engines all over the world.

Lt. Hugh Wade, one of the United States Army fliers to fly around the world, also demonstrated a military plane in the various South American countries. His plane was of the Consolidated "Hawk" type and



A Wright Whirlwind powered Fairchild cabin monoplane used by the Royal Canadian Air Force for photographic work and patrol work, etc.

in this country for training purposes. Lieutenant Wade sold the demonstration plane to the Peruvian Army Air Service.

Probably the most interesting activity of American aircraft outside of the United States is that carried on in Peru by Huff Deland Dusters, Inc. A recent flight made by C. E. Woolman, vice-president, and "Duke" Tolson, pilot of Huff Deland Dusters, Inc. from Lima, Peru, to Gaspazul, Ecuador, was the second to be made

between these two important cities and was actually the first time that a passenger and mail have been carried by airplane between the two countries. The actual time consumed was eight and one-half hours as contrasted to a journey of five days which would ordinarily be required by customary vessels.

Another development in Peru is that of the Iquitos-San Ramon Air Service which has been in operation since the



Action picture of a Wright powered Huff Deland Duster in operation at Lima, Peru. These planes have also proved of great value in drilling work in other countries.

beginning of the present year. Iquitos is a city located on the headwaters of the Amazon River in the eastern provinces of Peru close to the Brazilian border. The regular air mail and passenger service now operating has placed this city, formerly so remote, from civilization, within three days' travel from Lima. The line is operated under the direction of Commander Gove, former U. S. Naval aviator and now chief of the Army and Navy Air Services of Peru. The airplanes in use were supplied by the Keystone Aircraft Corp. of Bristol, Pa. parent company of Huff Deland Dusters, Inc. The planes are powered by Wright "Whirlwind" engines. This company has had planes in South America for the past two years. Much of the enthusiasm for aircraft which is to be seen in Peru has resulted from the various activities of the company there. The drop parachute service wherein the assets of the cotton crop are controlled by means of the "chaffing" of plantations with

monocle has become the accepted method whereby the large Peruvian plantations are protected. The method has proven to be of great economic importance in South America as is this country. It has been estimated that in this service one plane does the work which formerly required the services of 4,000 men.

Huff Deland Dusters, Inc. has secured concessions from the Peruvian Government for the carrying of mail and this service is shortly to be inaugurated. The air mail line will under the general direction of Capt. Harold K. Harris, A. C. R., formerly Chief Test Pilot, U. S. Army. Captain Harris, who is vice-president of the company has been associated with the company since 1925 when he was granted a leave of absence from the Army to organize the chaffing operations.

Ernest Foxmott, who has been operating an air taxi service in Peru for several years, has ordered a number of Stinson monoplanes for use in that business and on scheduled operations for which it is understood that he has received government concessions.

Many Fairchild Planes Used

The Fairchild Aviation Co. has many of its planes in operation throughout the world. Capt. George Rahl, an old man in Mexico, uses Fairchild cabin monoplanes on the line between Mexico City and Tepic. This organization, known as the Comarca de Atzacan, makes the round trip three times a week and its planes have been carrying mail for about six months. The carrying of payloads is an important part of this company's business. The present equipment consists of one 120 hp. Wright wing and one 425 hp. Wasp powered plane. It is reported that several Wasp powered monoplanes are on order from the Fairchild Company.

Richard Dwyer, sales manager and vice president of the Fairchild Company, reports that there are approximately 30 Fairchild All-Purpose planes in Canada, where one half that amount is used by the Royal Canadian Air Force. Canadian Vickers, Ltd., at Montreal has arranged for the manufacture of Fairchild planes under license.

The first airplane to reach the German and Irish islands (born at Greveling Island) was a Fairchild piloted by "Duke" Schiller. The versatility of Fairchild monoplanes, with their folding wings to save hangar space, is demonstrated by the fact that passengers and the standard wheel landing gear are used on these in Canada. The Aviation Corporation of Cuba, the Argentine Government and Huff Deland Dusters of Peru are recent purchasers of Fairchild's. Air, Goshel and Edwin Nakamura, vice president of the Fairchild Camera organization, demonstrated a Fairchild in Japan early this year.

The Boeing Aircraft Co. of Seattle, Wash., has become interested in the market of exporters. Capt. Ray O'Neil of the World War one and former chief instructor for the Mexican Air Service, flew a Boeing single seater before the government authorities of Brazil. Captain O'Neil re-

ports both the Boeing Company and the Pratt-Whitney Company in South America. It is expected that he will demonstrate a Boeing mail plane and a Boeing seaplane there shortly.

The Atlantic Aircraft Corp., manufacturer of Fokker planes in the United States, has branches selling a one-seater number of "Universal" in Canada, estimated itself to the possibilities of Mexico in a market. GEORGE E. HAYNES, sales engineer for the Atlantic Company, returned several months ago from a \$10,000 mt. trip of which \$400 was in Mexico. The plane was delivered to Comdr. Richard Byrd upon completion of the trip and is of the "Super-Universal" type equipped with a Pratt-Whitney Wasp engine. Mr. Haynes is said to



G. E. Haynes, right, and Col. P. Sizer, chief pilot, Mexican Army Air Service, in front of the Wasp powered Fairchild Super Universal which Mr. Haynes flew to Mexico City.

have crossed over the mountains at an elevation of 15,000 ft. between Guadalajara and Mexico City and did so with full gas capacity, three passengers and baggage.

The Saxon Aircraft Co. of Northville, Mich., is said to be furnishing six monoplanes for the Mexican air mail route to connect the United States and Mexico City. Fokker bi-planes and Stinson seaplanes are expected to be used on the Pan American Airways route in Central America and the West Indies.

Several American planes have been in operation on the West India-Australia line. Capt. Ray O'Neil, of the World War one and former chief instructor for the Mexican Air Service, flew a Boeing single seater before the government authorities of Brazil. Captain O'Neil re-



Two Huff Deland Dusters at work in Lima, Peru.

Export Figures and Trade Commissioners' Reports

Prepared by the Aeronautics and Communications Section
Bureau of Foreign and Domestic Commerce

NOT since the first export of an American aircraft in 1905, when the Wright brothers shipped their airplane to France, has there been such growth in aircraft foreign shipments as during the first half of the current year. In that space of time 82 airplanes, at a valuation of \$240,027, were exported as compared with 59 valued at \$311,659 during the first six months of 1937, and 63 at \$248,868 during the whole year of 1937.

The export valuations of all aircraft products, including engines, accessories and parts, was \$1,688,379 during the first half of this year, or 57 per cent. greater than the valuations of such products shipped to foreign countries during the same period of the preceding year when it was \$1,074,480.

This remarkable growth can be attributed largely to Colonel Lindbergh and others whose flights have stimulated worldwide interest in American aircraft. Another reason is that our domestic demand has been large during the last year, and aircraft production has increased even at a greater rate than exports. It is expected, however, that when the year is ended, unit exports of airplanes will exceed 100 per cent of the production which is a record for the better established industries of the country.

Canada the Principal Market

Canada remains the principal market for airplanes being the country of destination for 34 valued at \$401,445 with Argentina second; the latter being the purchaser of 18 valued at \$121,030 as against with 8 valued at \$150,111 during the whole of 1937. Canada was the destination for 36 valued at \$107,021 during 1937. In connection with Canada the following quotation from a report received from American Trade Commissioner A. B. Thompson, attached to the office of the American Commercial Attaché at Ottawa, will be of interest as an indication of why that country is so important as a market:

"Flying in Canada has been used primarily as an improved method of observation, although it has now more attention is being accorded to mail and passenger services. During 1937 commercial companies more than doubled their flying time, while civil operations for the Dominion Government increased proportionately. Aircraft was used for such varied purposes as distributing leaflets, the mailing fleets of the Newfoundland coast, forest patrolling in Cape Breton Island, forest fire protection and fisheries patrol in the far west, observation of ice conditions throughout the winter in Hudson Strait, transportation in the Yukon, and for mail service."

"Recently a heavy demand for light air craft has been noted. The De Havilland 'Mosk' has proved popular,

and in 1937 the Ontario Provincial Air Service purchased four single-engine airplanes of this type for five districts patrolling Northern Ontario. Since that time these planes have been purchased in larger quantities. The 1937 report on Civil Aviation in Canada states that more than 40 light planes are in use or on order for the dominion patrols, and light transportation in Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia, as well as for flying club and private use throughout the Dominion. The Department of National Defense has encouraged the formation of light airplane clubs and associations by furnishing



Harold R. Harris, official in charge of shipping airplanes in Peru, ready to take off in a Huff-Duff biplane.

such organizations with airplanes. There have been large orders from the United States of light monoplanes, both around the Wright 'Whitcomb' engine. These planes are used for transportation purposes in the north country.

"Few individuals and firms operating aircraft in Canada carry insurance on either their planes or passengers. It was said at the office of the Canadian Air Board. Most firms are small and cannot afford the high insurance rates. Taking their own risks, some of these operators have been forced out of business by accidents. On the other hand, the larger firms carry insurance, and as aviation expands there may be a good opportunity here for American insurance companies."

"Several Canadian companies are engaged in the manufacture of aircraft. One of the most important of these is Canada Vickers Ltd., whose output during the past year included 2 Vickers, a five-engine flying boat;

7 Vickers, a three-seater flying boat specially built for forest skidding; light transporters, and aerial photography; 12 Avro trainer machines; and 5 Vickers Viscounts. A great deal of repair and reconditioning work is done for commercial firms by the Canadian Vickers Company. An arrangement also exists with an American manufacturer whereby each firm may build, under license, the aircraft of the other's design, and consequently a number of other monoplanes are being constructed by the Montreal company.

The De Havilland Company maintains a branch at Toronto for the construction of its planes, particularly the Mosk which is in wide demand for flying club, patrol work, and the like. The Ottawa Car Manufacturing Co. at Ottawa has contracts for the reconditioning of standard Avro training machines and for the construction of fuselages and other aircraft parts in their shops. They also have a working arrangement with an American company for the assembly and service of the latter's products, and are the Canadian representative importer of Avro strong Siskiey Motors, Ltd."

25 Plans for Latin America

The Latin-American market showed a strengthening attitude as United States aircraft purchases were concerned, this section being the destination during the first half of 1938 for 29 of the 82 planes exported.

The recent mission of United States pilots and planes which have covered the countries to the south have been largely responsible for these sales. This fact is illustrated in the following abstract from a report concerning the situation in Mexico by American Commercial Attaché George Wylie at Mexico City:

"During the period of the last year, and more particularly since the year of Colonel Lindbergh from December 14 to 38, 1937, there has been a tremendous interest in aviation in Mexico which has resulted in

UNITED STATES EXPORTS OF AIRCRAFT ENGINES

Country of Destination	Calendar Year			First 6 Months 1938		
	No.	Value	No. Value	No.	Value	No. Value
Argentina	2	\$2,718	34	\$63,384	7	\$8,795
Brazil	1	—	3	\$6,000	—	—
Colombia	1	\$420	2	\$6,480	—	—
Costa Rica	—	—	1	\$1,320	4	\$7,728
Cuba	1	\$60	2	\$2,160	1	\$7,560
Guatemala	—	—	2	\$1,980	—	—
Honduras	—	—	1	\$1,320	—	—
Mexico	—	—	2	\$1,980	—	—
Nicaragua	—	—	1	\$60	—	—
Panama	—	—	1	\$1,320	—	—
Paraguay	—	—	1	\$1,320	—	—
Peru	—	—	1	\$1,320	—	—
Uruguay	—	—	1	\$1,320	—	—
Venezuela	—	—	1	\$1,320	—	—
Other countries	16	\$28,461	26	\$56,133	1	\$51
Total	29	\$27,232	84	\$64,679	10	\$27,857

connection with the rest of Mexico and can only be viewed by successful regular shipping service. In fact, the present three, the office of United States consulates and close commercial relations with the United States than with the rest of Mexico. For some time, the Government has been anxious to overcome the difficulty to acquire by air mail service the trade between Mexico City and Vera Cruz and the principal commercial centers of the southeastern states.

"Another example of the exceptional advantages offered by aviation in Mexico is the fact that the trip can

UNITED STATES EXPORTS OF AIRPLANES, SEAPLANES AND AMPHIBIANS

Country of Destination	Calendar Year			First 6 Months 1938		
	No.	Value	No. Value	No.	Value	No. Value
Argentina	9	\$444	26	\$9,821	34	\$61,140
Brazil	7	\$7,640	18	\$65,511	16	\$25,000
Colombia	1	\$1,320	3	\$6,000	—	—
Costa Rica	—	—	1	\$1,320	4	\$7,728
Cuba	1	\$60	2	\$2,160	1	\$7,560
Guatemala	—	—	2	\$1,980	—	—
Honduras	—	—	1	\$1,320	—	—
Mexico	—	—	2	\$1,980	—	—
Nicaragua	—	—	1	\$1,320	—	—
Peru	—	—	1	\$1,320	—	—
Uruguay	—	—	1	\$1,320	—	—
Venezuela	—	—	1	\$1,320	—	—
Other countries	8	\$2,718	16	\$28,983	1	\$51
Total	40	\$33,141	83	\$248,952	72	\$407,427

be made from Mexico City to Tampico in only two or three hours by plane, while it requires over 27 hr. by rail.

"The outstanding development during the present year has been the announcement of the creation of the Federal Government to establish six air mail services from Mexico City to the Texas border at Nuevo Laredo, connecting with the United States air mail service at that point. An executive decree of January 21, 1938, authorized the postal rates on first class mail for the purpose of creating a fund with which to carry out the service. It is announced that no planes, manufactured in the United States, have been ordered for use in establishing this service. The Mexican Aviation Co. which is licensed to supply with American capital, now has a contract with the Government for carrying the mails between Mexico City, Tampico and Tampico. This service was inaugurated on April 15, 1938.

Mrs. Lindbergh's Trip Helped

"The trip which Mrs. Lindbergh made from her home in Detroit to Mexico City in an American plane to spend Christmas with her famous son, as a guest of Ambassador Marmon, and later, in July, 1938, the extension trip of the American-built plane to be used by Commander Byrd as his South Pole expedition increased the public interest in aeronautical matters."

Three devastating missions have been sent to South America by United States aircraft manufacturers, and although the business element is not large, it is expected that the expenses will be justified, especially as the aircraft demonstrated means to have made a profound impression upon potential purchasers in the countries to the South. One flight from New York to Buenos Aires in a Douglas biplane, a four-engine plane, was accomplished in seven hours and twenty minutes and

(Continued on page 108)

New Bach Plane Placed in Service

*"Clercher" is First of Fleet
Ordered by West Coast
Air Transport*

PORTLAND, ORE. — The Chamber first of the new, 18-passenger Beech air yacht ordered by West Coast Air Transport operating company for Union Air Lines, is now in service on the Portland-San Francisco run of the company. The big miniplane carried a full load of eight passengers on her maiden voyage to the coast September 30.

The plane is similar to the Canadian and Greater than air-jetliners with which West Coast started its Seattle-San Francisco service in March except in power and in cabin and baggage space construction. Its nose is in a Pratt & Whitney Wing. The wing engines are 5 cylinder Ryan Jets.

All the fuselages, except the pilots' section and the rear baggage compartment, are thrown into one cubic, instead of exiting all the rear two seats for a smoking room. The lavatory, in the middle of the old model plane, is moved to the rear. Two baggage compartments have been left into the rear of the wings near the fuselage so as to take most of the load off the tail.

References Cited

The Cherokee entered the Canadian market with Field, San Francisco. The latter was referred to the Bush Aircraft Co. plant near Los Angeles to be modified along lines similar to the Cherokee. It now has 7 cylinder Ryan Sessons wing engines and a Wasp nose. The most powerful and power plants will be installed and the cabin reconstructed to match that of the new planes. The Graceland, now powered with a Mikulic and 7 cylinder Ryan Sessons engine, will follow to the factory as soon as the Cherokee is released or a fourth year phase due to a work in progress.

Delivery of the Cherokee was delayed by the plane's use as official transport at the Los Angeles Exposition. Daily service between Portland and San Francisco and the inauguration of Portland-Spokane service through the Columbia gorge are exciting aspects of the fourth phase and reconstruction of the Canadian air frontier.

Heck Considers New Plant

HOLLYWOOD, CALIF.—Construction of a manufacturing plant at the proposed International Airport here is being considered by the Eash Aircraft Co., it is reported. The company plans to build one 300 by 150 ft hangar at the field which lies northwest of North Hollywood.

*Comet Awarded
Certificate No. 9*

WASHINGTON, D. C.—Approved engine type certificate No. 8 has been awarded to the Comet engine, according to an announcement by the Aeronautics Branch, Department of Commerce. The power plant develops 115 hp. at 1375 rpm.

W.K. Neely to Organize Aero Chamber Division

WICHITA, KAN.—Wilbur K. Nash, a past president of the Wichita chapter of the National Aeronautic Association, has been selected to represent the south central division at the Aeronautical Chamber of Commerce and to attend a large Wichita convention at the aeronautical exposition in Chicago which opens December 1. This is America's international show, to be attended by dignitaries from the air services of foreign nations.

The legislation on Chicago is the annual event in associations in America, and is now being made permanent and self-sustaining. Within the architectural chamber a close association has been chartered, and manufacturers of the nation have supported the work. Nearly every antique industry in Chicago is now in it. The Shelton, Spangman, Travel Air and Laird factories have taken stock. Cassius and Dwight have agreed to do so. All aircraft companies here will be represented at the Chicago show, Mr. Moody says, and several of the firms will exhibit more than one plane.

U.S. Chamber Proms Air Traffic

WASHINGTON, D. C.—Consumer Awareness is among the subjects to be discussed at the Chamber of Commerce of the United States conference to be held at the Mayflower Hotel, Chicago, May 2.

The conference, will be attended by national soundalities, presidents and secretaries of local chambers of commerce and trade associations, members of the National Chamber's Board of Directors and principal executives. The national representatives who are the outstanding link between the National Chamber and its 3,800 member organizations, include some of the most distinguished business and financial figures in the country.

Kierulff et al. *Marine Science*

WICHITA EARN—A. Kierling is assigned as inspector of the Department of Commerce at Omaha, to become the manager of the Aeronautical Society's Association in Wichita. Kierling has been here for the past 30 yr.

Marchetti to Produce Planes and Engines

SAN FRANCISCO, CALIF.—According to an announcement made by Marathon Motor Fuels, Inc., a tract of 300 acres adjoining Mills Field has been purchased for an emergency landing field and plant site. The company plans production of an F cylinder, 175 hp, radial air cooled engine and a four place all wheel, enclosed, amphibious monospace and is looking for an output of 1,000 engines and 100

Experiments on the engine began more than seven years ago and development under laboratory conditions during the past three years has brought it to the point of manufacture. It is a new type of engine embodying a new principle on which the company holds patents in this country and abroad. The engine is said to develop 20 per cent greater horsepower per displacement than a crank shaft type. The weight will be approximately 2,500 lbs. per hp.

No information is available as yet regarding the plane except that it will have a cruising speed of 120 mph and will be priced from \$1,000 to \$5,000. The company is well financed and production will be started about June, 1938.

Officers of the company are: Paul Marziani, president; Dr. R. P. Gervasio, vice president and secretary; Peter Lupo, treasurer. Besides the officers the board of directors includes: G. Gioia, Capt. A. J. Tappia, Paul DeLo and Frank Santos.

Menasco Firm Adds New Unit to Factory

LOS ANGELES CALIF.—Demand for the Mustang-Salmon razors, long produced by Minico Minico Co., Los Angeles, has increased so rapidly that the company has added a new unit of approximately 2,800 sq. ft. capacity to its original factory building. This additional space gradually doubles the former production facilities and will enable the company to increase deliveries which are now several months behind.

The Minnans Motors Co. hopes to exhaust its supply of bearings parts during early 1929 and proceed at once to the production of a new radial air cooled engine which has been under development for some time by A. S. Minnans, president of the company.

Dugout Shores Attract Many

ATLANTIC CITY, N. J.—A feature which attracted attention at the recent Dr. Fort Products Exhibit at Atlantic City is the showing of gasoline and oil containers similar to the equipment for the Ely-Lasker Foundation.

The equipment shows includes a Tydol Amazon gasifier tank, Tydol gasifier can and a Verdel motor oil can. These were supplied to the De Ford Exhibit for display purposes by the Tide Water Oil Co. of New York City.

MANUFACTURERS' SPECIFICATIONS ON AMERICAN COMMERCE
THE TABLE BELOW IS BELIEVED TO BE ACCURATE BUT APPLAINS

This table contains proprietary and confidential information

MANUFACTURERS

Manufacturer	Designation	Year of Invention	Type	No. of Tests	Quality of Engine	Test Result (hp)	Make of Propeller	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. Area (sq ft)	Length (inches)	Engine (hp)	Prop. 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Pennsylvania Base Oil Used by Many Racers

MINTS FIELD, LOS ANGELES.—Viewers of Pennsylvania base oil racing will be the primary beneficiaries during the 1938 National Air Races by the participation of Kendall Petroleum Laboratories in the Class A, B, and C (cross-country) events.

Twenty-two of the 30 starters in Class A were using Kendall Petroleum lubricants, 15 of the 22 planes that finished in this class were using this type of oil, and of these 15 the first 13 place winners were so lubricated.

In Class B nine of the planes in finish were lubricated with Kendall Petroleum products, and Robert Connerly, who flew his Warhawk Lockheed Vega to first place in the Class C race, reported excellent lubrication by Pennair.

The Kendall organization at Mints Field was engaged to service all participating in the Pennair interests in the closed course races and those who employed Pennair for their engine lubricating during the cross-country races, and this lubrication in the various aviation centers on the closed course.

Wasp Engines Took Many Race Honors

In the recent New York-Los Angeles transcontinental air races several "wasps" were seen by planes powered with Pratt & Whitney engines. In the new city-built Air Corps contest a Lockheed plane, powered by a Wasp engine, in this race, placed for better the record for the cross-country flight when about a month ago he flew from California to New York in the record-breaking time of 18 hr. and 10 min. The Wasp also placed first, second, and third in the Class C event.

Not only did the P. & W. engines place in the cross-country races but also in the Los Angeles races. A Boeing biplane won the flying and climbing round the plane being powered by a Wasp engine and piloted by Lewis H. Sellsman. The same plane also won the free-formal pursuit race, returning victory less than 105 in 1/2 hr. The King plane was piloted by Fred T. F. Jr.

Robert Connerly in a Wasp powered Lockheed won the speed race. The Wasp also took second place.

A. C. of C. Dinner for Cinema

NEW YORK, N. Y.—Representing the aviation interests, the American C. Cinema for Commemorative of America was held in the motion picture industry at a dinner held at the Waldorf-Astoria, September 19. The party played by the cinema in the winging aircraft was headed by Maj. Lester D. Garbutt, president of the Cinema.

A motion picture air library of Col. Charles A. Lindbergh was the feature of the gathering, a total of nearly 800 persons, including leaders in both fields.

Colors Propeller Tips as Warning

MILWAUKEE, WIS.—Roger La Parle, local pilot, has devised a plan to warn persons away from whirling propellers. A simple warning of red and blue stripes painted on the tips of the air screw clearly defines the rotating blades, and according to La Parle, definitely explains those standing in front of the angles of approach to the danger zone.

Consolidated Closes Four New Contracts

LOS ANGELES, CALIF.—Consolidated, providing for exclusive use of Consolidated Instruments on four planes were closed at the Exposition here, according to M. E. Hales, Western representative of the instrument firm. The companies involved are Cooney Aircraft Co., Federal Aircraft Co., E. A. Bibo, and the Society Aircraft Co.

Mr. Hales also announced closing of one contract with the Nicholas-Bentley Airplane Co. Inc., of Marshall, Mo., to act as distributor of Duxbury Goggles in the territory east of Denver and with the American Aircraft Corp. to distribute this product in Los Angeles County, Calif.

Mott, N. D., Schedules A Tri-State Air Meet

MOTT, N. D.—A Tri-State (Montana, North Dakota, and South Dakota) Air Meet and Aviation Show will be held at the Legion Airway at Mott, October 2-4. Mott is located near the southwestern corner of North Dakota and is not far from the Montana and South Dakota borders. The field is only about a half mile from town with runways of 2000 ft. or so in dimension. The events include spot races, cross-country races for various type planes, speed competitions, and starting exhibitions. In addition, aviation games will be staged to the pilot coming the fastest air line distance, to the pilot arriving first at the field, to the fair carrying the most passengers, and to pilots competing in all the events.

Network Meet Postponed

NEWARK, N. J.—According to an announcement made recently by Mayor Thomas L. Raymond, the celebration and more extended fair opening of the new proposed jet airport here will be postponed until next Spring. Mayor Raymond stated, however, that the postponement would not interfere with the transfer of the New York Air Mail terminal from Hudson Field to Newark which is to take place in the near future.

Plan Removal of Air King Factory

Plant to Be Transferred From
Lomax to New Field

Near Peoria

PEORIA, ILL.—Bernard J. Kelly, vice president and general manager of the National Aircraft Service, Inc., representative of the Air King plant, announced that the respective plant in Lomax will be transferred to a site west of the city, where a 100 acre field has been acquired under contract at a cost of about \$60,000.

Work is to be started immediately upon buildings which will house the company's carrying office, designing room, and show room. In addition the company will maintain an airport at the site. Several hangars, each of six planes capacity, with a warehouse and open on the Rock Island Lines tracks, are included in the structure.

The new Peoria factory is scheduled to begin producing at the rate of 15 planes a week. The National Aircraft Service, Inc., added a new Air King, Model C, to its line with accommodations for low production. This plant is equipped with the Whetstone engine. Mr. Kelly expects to have one of these planes at his disposal before a month.

S. F. Tamm, president of the company, is in a formal communication with Mr. Kelly indicating that the company expected to have delivered 400 and still more airplanes in 10 days within six months after it opens. Jackson and Shuman of the city are working for the new factory, scheduled to be completed by January 1. The National Airways is a \$1,000,000 corporation.

Many Products Shown At Springfield Exhibit

SPRINGFIELD, MASS.—A large number of airplane operators and military aviators exhibited products at the aircraft show held in connection with the recent Lunenburg State Exposition. A large list of products was displayed.

Among the exhibitors were a Landing Association of the Navy, two planes from the Pennsylvania school recently organized, several of the light commercial plane builders, Radioelectric engines, and a Glavin. A. L. Gulland headed the air show committee. Mr. Gulland is a vice president of the Society of the Flying Club of Springfield.

S. A. E. Holds Aviation Meeting

NEW YORK, N. Y.—Commercial aviation was the subject of the meeting of the Metropolitan Section of the Society of Automotive Engineers, held September 19 at the Park Central Hotel.

MANUFACTURERS' SPECIFICATIONS ON ENGINES AVAILABLE FOR COMMERCIAL USE AS COMPILED BY AVIATION

[illegible]

This study is (i) a novel method and mechanism for monitoring and predicting

THE BUYER'S LOG BOOK

General Electric Welder

WELDING EQUIPMENT currently being subjected to heavy duty, it is of primary importance that all component parts be of rugged construction. A series of arc welders having this feature is being offered by the General Electric Co., Schenectady, N. Y. Three general models designated WD-200A, WD-300A and WD-400A, and having ratings of 200, 300 and 450 amperes respectively are included in the series. Each type may be furnished for both manual or machine manual operation and in stationary



View of WFD-200.1 portable type General Electric welder showing raised construction.

or portable units. These welders are so designed that only one person is required to operate them.

The WD-200A Type includes a ball bearing, air-excited, variable voltage generator of the two-pole type. The motor is a G-E standard 10 hp ball bearing type furnished for any commercial direct or alternating current voltage. The four terminal voltage generator can be connected for 120, 240, 480 or 960 volts. All windings are insulated and a 400-ampere ammeter and 120-volt voltmeter are mounted on the panel. Motor starter and synchronizing reactor are also provided. All units are mounted on a welded structural steel base and are completely assembled and wired at the factory. After inspection and tests it is shipped to the purchaser and is ready for work which may be required. The generator can be added where it is desired to make the unit portable.

Among the distinctive features of this welder are the built-in clamping handle by which the current can easily be adjusted to any value between 60 and 300 amperes, the self-adjusting resistor which automatically matches the arc under all welding conditions and the coefficient compensation at all loads. It is adaptable for use with all commercial sizes of electrodes from 1/16 in. to 1/4 in., also for light carbon welding or cutting. The rugged construction makes it possible to operate the unit for long periods without attention.

The weight of the A-type is 1575 lb. net and the shipping weight 1789 lb., while the net weight of the D-type is 1750 lb. and the shipping weight 1900 lb. When running gear is added to make the unit portable the additional weight is 200 lb. in either case.

Massillon Steel Products

HANGERS OF *essentially any design or type of construction may be secured by the use of* **Monaflex** *standardized steel hanger products, manufactured by the* **Macomber Steel Co., 1025 and Holden Ave., Canton, O. *These products include steel roof trusses and eekens for all building dimensions and provide decidedly economical construction.***

Other Mansfield products include precast steel joists, used both to carry concrete roof decking, and steel windows and doors. These, with concrete block, tile or masonry wall construction, provide permanent hangars of a highly durable type. When wood construction is preferred, decking, siding, rafters and doors may be used readily with Mansfield columns and trusses. Corrugated steel sheets provide inexpensive siding and are readily adaptable to structures built of Mansfield products. Other considerations will suggest themselves readily to those contemplating erection of hangars.

Two models of hanger doors are included in the line of Mustang products. Both are of the sliding type and roll on steel rails to provide a clear opening in the case of the hanger. Overhead steel cables, running over pulleys, support the doors. The doors are closed by pulling them down vertically when they are opened. A reinforcement steel frame, mounted on heavy cast wheels, serves for the less expensive type of door. Wood sheathing completes the door and corrugated steel sheets may be added for fire protection. A similar door furnished with suspended steel sheets for fireproof hangers, also can be provided. Hanger doors are available in a variety of sizes. The truck model has the eight sections for an 80 ft. hanger. It opens with 20 ft. exceptions to each side of the opening.

Flood Light Attachment



A FLOCO light attachment of new design for use with the small tanks of dissolvable anemones, for track and tractor lighting, manufactured by the Prest-O-Lite Co., Inc., 30 East 42d St., New York, N. Y., is now being offered by the company. Prest-O-Lite gas tanks are available from service stations throughout the country and by the connection of the new structure a convenient, portable, powerful flood lighting unit is obtained which can be used for illumination in dark places and for facilitating night work and all.

Light attached
standard test

burners have... diameter can be taken off by removing a single levered nut. A new type of burner is used which will not "carbon up." This burner is placed at a fixed focal point and requires no adjustment.



"Lok-Jaw" Pliers

PLIERS WHICH take their name, "LONG-JAW," from the arrangement whereby the jaws may be locked to maintain their position on the work, are available in many sizes and for many different types of work. The new long-jaw pliers, however, are designed to hold and adjust the position of the work. The new pliers are made by the Leeson Manufacturing Co., 2725 East 53d St., Cleveland, O. The tool is designed with an adjusting screw on the jaws and the compound leverage is said to provide a 1 ton grip at the jaws. The jaws are designed to fit round, square, hexagon or five objects.



Spring is provided in the handle and at the joint, which return the jaws to the maximum adjustment when pressure is released on the handles. The jaws are of steel forgings, hardened and tempered, the handles are of heavy grade pressed steel and have knurled grips. In the 3 in. size, it is noted that the maximum jaw opening is 5.4 in.

Lab-jaw phers save time in many operations in both hand- and machine shop and a number of welding specialties are using them regularly in their work.

BROWNBACK
MOTOR LABORATORIES, INC.

Instrument Panel

MANY MANUFACTURERS are now supplying standard panels, containing the necessary aircraft instruments in a single unit. A convenient and highly efficient unit of this type is manufactured by the Consolidated Instrument Company of America, 41 East 42nd Street, New York City.

The Type A aircraft instrument panel is an effectively illuminated group of consolidated instruments mounted in a single panel and including a tachometer, a Jones tachometer with temperature and oil pressure gauges mounted between.

Export Figures and Trade Commissioners' Reports

(Continued from page 1079)

in a standard military plane flown by one of our best known aviators.

The most recent report on aircraft market conditions in South America that has been received was prepared by Assistant Commercial Attache John D. Smith at Lima. He made the following observations on aeronautics in Peru which show that United States equipment predominates.

^aAll Persian imports of aircraft and aeronautic products during 1927 were of materials from the United States, 14 planes, six or eight spare engines and a considerable amount of spare parts, such as wings, pontoons, control surfaces, wires, etc.

*The total acquisition, including spare parts, amounted



**AVIATION CALLS ON
A MODERN GENIE
TO ACHIEVE LIGHTNESS
WITH STRENGTH**

Twenty-five years ago, on Hill Devil Hill two brothers made the first controlled flight in a powered plane. Yesterday, from a thousand fields ten thousand planes took off.

And since the progress of aviation is walking hand in hand with the reduction of useless weight, who dares put a limit upon its progress . . . the future?

Metallurgy, the modern genie, has given the aircraft industry a wonder working resource—Aluminum and its alloys.

This marvelous metal is also playing an important part in the safety side of aviation progress. Bulks, easily shattered wood is

being replaced with strong non-warpage members of Aluminum. Fragile, combustible veneers have given way to sturdy sheets of Aluminum.

There is hardly a part of a plane to which designers of today cannot apply Aluminum and its alloys with consequent gain in lightness, strength or safety.

In the years of experimentation and tests which preceded the present perfection of Aluminum and Aluminum Strong Alloys for aircraft use, Aluminum Company of America has, naturally, taken a leading part.

Whether it is Aluminum you want, pure or alloyed, fabricated into parts or ready for your own manufacture, or whether your present need is for technical information, here is the sure source to which to turn.

ALUMINUM COMPANY OF AMERICA
2452 Oliver Building, Pittsburgh, Pa.
Aluminum in Every Commercial Form Offices in 29 Principal American Cities

ALUMINUM AND ITS ALLOYS

for Aircraft

CHANGE YOUR ASSOCIATION



These metal parts and many other supplies Aluminum or alloys in the form of sheet tubing, rod, forgings castings, or others, manufactured by Aluminum Company of America

Feedings
Laminated Fire with/without
metal roof, paint metal
Cabin
Living for humans
Crewing
Hull Frame
Hull Skinning
Roofing Frame

- **Decorative**
 - Bucking
 - Walk, Wave
 - Chorus
 - Fabricated/Personal Shows
 - Angles
 - Corner Flares
- **Wings**
 - Bala
 - Broom
 - Lure and Trolley

Longhorn and Horn
 Wing (sawtooth wing)
 Brown Powder with clear
 signs deep for smaller
 holes
 Spots
 Internal Wing location
 Landing Gear
 Ground
 Clear Wheels

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 national
 Country for Business Man-
 agement
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- Core Case
- Cellular Models
- Moving Targets
- Systems
- Communicating Models
- Value Narratives
- Multifield Models
- Engage Support Groups and
 - Educators
- Ignoring What You
 - Don't Know
- Conclusions
- Future Research Opportunities

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"During the six months January-July, 1938 one airplane was exported to Austria and two to Colombia, at an average price of \$9,000 each; besides, 1731 lb. of various parts and accessories worth \$6,000 were also exported. The above figures do not include exports of the famous Swiss watches and other electric devices, airplane engines and engine parts, as these products are not listed separately in the Swiss Customs tariff but are included under various machinery classifications.

"Swiss civil aviation and air mail service, although partially subsidized by the Government, is in the hands of two private Swiss companies, besides several foreign companies which maintain regular itineraries in this country. The Government maintains workshops for the construction of military planes. In the past, nearly all military planes were purchased abroad, but at present a Swiss inventor is working on a model of a new type of piston plane which may become a standardized model. Apart from that, the French Dornier works and the Swiss Messerschmitt company maintain branch factories and assembly plants in Switzerland. It is thought, therefore, that for the next few years no contracts of any importance will be let to any foreign firm outside the ones mentioned above. A Swiss consortium has recently secured the exclusive right of manufacturing and sale in Switzerland of the Czechoslovak light of 60 hp. "Avon" B. II. 27 airplane, produced by the Sioda Company of Prague. The tables accompanying this article show the trend in aeronautic product exports during 1935, 1937 and the first six months of 1938. Attention will publish further market reports from time to time which will give details such as those shown which represent a cross-section of conditions existing throughout the world, indicating either against, or favorable to, the exporters of American aircraft.

Airlines Outside of the United States

(Continued from page 3013)

man and Netherland companies, but the two Swiss companies of Basel and Zurich cooperate with the German company Luft Hansa in services between Madrid, Barcelona, Marseilles, Swiss cities and Berlin, and between Swiss cities and Vienna via German cities. They plan to build up these and other international services over Switzerland and are making great progress.

France has maintained regular air services since 1919, when her first was started between Paris and London. The planes of six French companies fly on routes extending over 12,000 miles and serve 22 countries on three continents. In 1937 they flew over four million miles and carried 21,000 passengers. The total number of kilometers reported was 1,388,173 of which there were 771,700 of passengers, 100 kilograms in counted for each passenger) 445,591 of goods and baggage and 171,382 tons of mail.

The French subsidy to air transportation companies was increased from 79,000,000 francs in 1937 to \$15,000,000 francs for 1938 and a larger sum is proposed for next year. The purpose has been to provide rapid air mail and passenger services between Paris and the colonies and the capitals of friendly countries, and secondly an air mail service to South America. The French traffic is lighter than that over the shorter Netherland lines, but is growing. Extensions of the French system into the east and into Africa are planned. The 3,500-mile section in Brazil, Uruguay and Argentina may if plans are

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Inset photo caption: Glen Harrow, Sect. of Production, Sinclair Oil & Gas Company with his airplane Harrow C-28 made for his other employees at the Sinclair Oil & Gas Co., para su transporte a los pozos de la Sinclair en los Estados Unidos de America.

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vision is Peru and one of these will soon operate between Lima and Puno. The "Andean" company in Colombia has extended its line from Bucaramanga to Quila, Ecuador. A line between Seattle and Vancouver was started in July, and one between New York, Albany, and Montreal will be inaugurated in October. The Post Office Departments in the United States and Mexico have arranged with each other and private operators for a co-terminating service between the existing American net of air lines and Mexico City.

These are forerunners of a vast system of air services between American countries.

Most European companies belong to the International Air Traffic Association which is working for uniformity and cooperation among the operators. Similar conditions are offered the traveling and shipping public by the companies and they are exchanging traffic and helping each other to build it up. There are other organizations engaged in boosting international air traffic and they are making steady progress.

International air transportation is well established. It is making rapid progress and will reach enormous proportions. Airways with greater efficiency and capacity, the advertising of services and soliciting of traffic and efficient management of air transport services will be important factors in this growth. The last mentioned is not least because it is placed at the end.

Proper Packing Methods for Export

(Continued from page 1013)

pieces of same material, the 2 x 4 in. supports run the entire width of the case, but are not attached to the side walls. A piece of wood with angle iron fittings is nailed up both sides of the case and fastened to a support preventing turning aluminum sheets which is placed over the center bulk head of the partition. This permits the case to be placed in any position without changing positions or bending back on which the partition runs. The wing doors, one at each end, are placed in the same case. Two 2 x 4 in. members crosswise and four vertical, forming a cradle which is fastened with lashing (left) and belted together, hold the wing doors securely in position. This case also contains small repair parts and wire straps which are securely tied to the flooring.

Another System Employed

Another well known exporter of airplanes employs methods of container construction and bracing for his heavy pieces which are slightly different from the system which has already been described. This manufacturer states that since the illustrations were taken further developments have been made in connection with the method of securing the fuselage in the box. The latest method consists of mounting the fuselage on a separate sled similar to the one shown in the accompanying photograph, except that the sled is provided with a rotating device. Remember which engages the fuselage immediately after it is in the engine. This roller bears on two points of attachment to the fuselage and a single point of attachment to the fuselage sled. This point of attachment is in the center of the sled and consists of a bolt with an easily longitudinal to the fuselage. Only two additional fixed points of attachment are provided in the sled—one on each side of the fuselage—above the first set of the roller. This, therefore, gives a three-point connection which permits a reasonable amount of longitudinal resis-

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ely. by means of a 1/4 in. true mounting plate. The upper section, or cover, telescopes inside of guides on the lower section so that the outer surface of the box is fresh.

Four strap iron ribs, 3/4 x 1 1/2 in., are provided, and are bolted to the main frame supporting the engine in the lower section, and by means of bolts secure the cover in place. These ribs have eyes with 1/2 in. hole bolts in the upper end and a slot is provided on one of the cover bolts. The cover is plainly marked on top, "This side up—handle with care."

Three skids, 2 x 6 in., laid flat and spiked to the bottom, support the weight of box and engine on the floor. Yellow pine and spruce wood is used entirely for the box, the skidding being tapered and grooved and laid



Showing a portable engine and landing truck mounted on a skid-ship box. Note weight distribution. Case dimensions are 20 1/2" x 52" x 54". Gross weight, 3,093 lb. Net, 953

double at right angles or diagonally, with tarred paper between layers. The engine support framework and lumen are 2 x 6 in. in the corner pieces of both upper and lower sections, are 2 x 4 in. and cover braces and reinforcements are 3/4 x 4 in. These dimensions are nominal and specifications call for the material to be thoroughly



Showing the method of supporting a fuselage of a biplane in a shipping cradle. (Given L. Martin photo.)

seasoned and kiln dried. All nails are cement coated and commercial three-eighths inch bolts with washers and square nuts are used throughout.

Four chest handles are provided for lifting and lowering the cover section. Accessories are packed in small boxes laid into the lower section and provided with around an inch. All repaired parts of the engine, except the propeller shaft are customer plated. The shaft is coated with a non-petrifying grease and wrapped with heavy paper, as are the oil inlet and outlet nozzles.

(Continued on page 1034)

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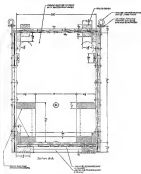
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To insure the safe arrival of export shipments at their foreign destination proper and distinct marking is absolutely essential. Clear, legible brush marking is permissible, but stencil marking is most satisfactory and there is less chance of error when stencils are used. In marking airplane equipment for export, stencils should be at least five inches high, and on larger cases marks even higher would not be too large.

Markings must agree in every detail with those shown on invoices and bills of lading in order to simplify the work of customs, customs authorities and others who handle the goods. All the marking should be together and



CROSS SECTION OF CASE CONTAINING AIRCRAFT ENGINE

not scattered over the face of the case. A prominent place should be given the company's name, the destination and marking. These must be on large letters and, if possible, in the center of the face of the package. The weights (gross, net, or legal), cubic measurement, and serial numbers are prominently placed in the corners.

The size and legibility of stenciling should be given particular attention. That a good quality of black waterproof stencil ink or paint be used is of primary importance. To make the articles to be stenciled are of a dark color, white ink or paint should be substituted for black. There are many excellent waterproof marking inks available to exporters. Fountain brushes are commonly used because they assure a clear, legible marking. Many exporters cover all marks with a coating of shellac, which coats but this pit makes the marking absolutely impervious to dampness and water and prevents rubbing off. The composition of the United States Army standard black stencil paint is as follows: Pigment 50 per cent,

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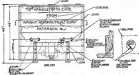
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AVIATION
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There should be inclosed with each case a packing list showing the contents of the case as an aid to unloading and



Five time drawing with dimensions of a shipping can containing a Wright engine.

boxes. Each case should also carry a duplicate set of markings so that if any or all of the exterior markings are defaced there will still be ample information to insure delivery of the goods to their proper destination.

It is obvious that custom marks are in the language of the country of destination and of little value, for they will not be understood by those who handle the shipments. Many exporters, particularly Germans, instead of marking a case "fragile," call attention to the character of the contents by symbols on conspicuous parts of the case. An arrow pointing to the top of the case indicates "This side up" in any language.

Government Assistance for Aeronautic Exporters

(Continued from page 10013)

the firms have been in business and their general business conditions.

Foreign representatives of aircraft and equipment manufacturers are welcome to come to Washington before the meeting and obtain what information they need on the prospects to be visited. Before the three demonstrating missions left, which have recently returned from South America, they called at the Department of Commerce headquarters, where information was given to them on the South American market prospects, and arrangements were effected for their reception there. Similar service is available to all bona-fide American firms.

A broader aspect of the work of the Bureau has to do with general trade promotional activities. Negotiations are carried on toward the entry of American aircraft into countries, where such entry is restricted, with the valuable assistance of the Aeronautics Branch. With this general Governmental service being rendered to the aeronautics industry there is no reason why it should be reluctant to seek foreign markets actively.

Many firms will at this time state that they are so busy with domestic business that they cannot spare attention for export. This is shortsighted. Experts believe that the time is not far off when there will be over-production in the aircraft industry. Export business offers a outlet for such conditions and the firm which cultivates it now will have it when it is most needed.

AVIATION
September 25, 1959

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